



Europäisches Patentamt
European Patent Office
Office européen des brevets



(11) EP 0 899 820 A2

(12)

EUROPEAN PATENT APPLICATION

(43) Date of publication:
03.03.1999 Bulletin 1999/09

(51) Int Cl.⁶: H01R 9/26

(21) Application number: 98302950.5

(22) Date of filing: 16.04.1998

(84) Designated Contracting States:
AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU
MC NL PT SE
Designated Extension States:
AL LT LV MK RO SI

(72) Inventors:
• Beaney, James Weidmuller Limited
Sheerness, kent ME12 3AB (GB)
• Gustafsson, Olle Weidmuller AB
12450 Bandhagen (SE)

(30) Priority: 08.07.1997 GB 9714457

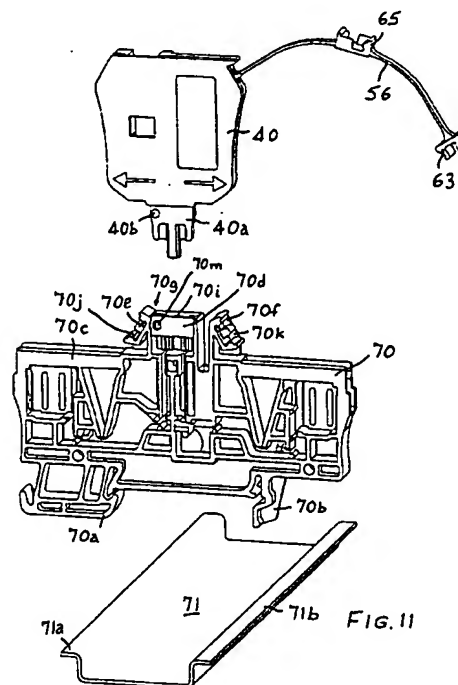
(74) Representative: White, Martin David
MARKS & CLERK,
57-60 Lincoln's Inn Fields
London WC2A 3LS (GB)

(71) Applicant: Weidmuller Limited
Sheerness, Kent ME12 3AB (GB)

(54) Fuseholders

(57) An electrical fuseholder (16, 40) is adapted for use with a rail-mounted electrical terminal block (14, 70). The fuseholder (16, 40) comprises an insulating plastics housing (26, 41), a portion (26a, 44) of the housing (26, 41) being formed with a cavity (28, 45) for a cartridge fuse (30, 46). Two conductor elements (32, 34, 47, 48) are mounted to the housing (26, 41). One portion (32a, 34a, 47a, 48a) of each conductor element (32, 34, 47, 48) forms a respective one of two contacts for the fuse (30, 46). Another portion (32b, 34b, 47b, 48b) of each conductor element (32, 34, 47, 48) forms a respective one of two external contacts of the fuseholder (16, 40), for plugging into the terminal block (14, 70) and making electrical contact with two corresponding internal electrical contacts of the terminal block (14, 70). The terminal block (14, 70) and the fuseholder (16, 40) are adapted so that the fuseholder (16, 40) can be plugged into the terminal block (14, 70) selectively one way round or an opposite way round, relative to an axis (25) of the fuseholder (16, 40). The portion (26a, 44) of the housing (26, 41) formed with the cavity (28, 45) for the cartridge fuse (30, 46) is located wholly to one side of said axis (25), whereby, in use, two mutually adjacent such fuseholders (16, 40), plugged opposite ways-round into mutually adjacent, stacked, terminal blocks (14, 70) mounted on a mounting rail (12, 71), become stacked together so that said portion (26a, 44) of the housing (26, 41) formed with the cavity (28, 45) for the cartridge fuse (30, 46) of each fuseholder (16, 40) is located to one side of said portion (26a, 44) of the housing (26, 41) formed with the cavity (28, 45) for the cartridge fuse (30, 46) of the other fuseholder 16, 40), enabling the pitch (x mm) to be 5 mm of a stack of fuseholders (16, 40) containing 5 mm diameter cartridge fuses (30, 46). A lid (42) may be

hinged to the housing (41).



EP 0 899 820 A2

Description

Field of the invention

[0001] This invention relates to electrical fuseholders for use with electrical terminal blocks which, in use, are mounted - preferably though not necessarily demountably - on mounting rails.

[0002] The term "terminal block" herein means, and is defined as, such a terminal block having a length, transversely of the rail, and a height, perpendicular to the rail, both much greater than a thickness of the terminal block, in the longitudinal direction of the rail, and the terminal block being adapted to be stacked with other such terminal blocks along the mounting rail.

Prior art

[0003] With prior art electrical fuseholders for use with electrical terminal blocks mounted on a mounting rail, if the cartridge fuse is of x mm diameter, x being an arbitrary dimension, for example, 5 mm, the pitch of the terminal blocks must be greater than x mm in order for the cartridge fuse to be accommodated in the fuseholder.

[0004] It is an object of the invention to overcome this disadvantage and to enable the terminal blocks to be mounted (on the mounting rail) with a pitch equal to x mm.

Summary of the invention

[0005] According to the invention there is provided an electrical fuseholder for use with a rail-mounted electrical terminal block of the type defined, the fuseholder comprising an insulating plastics housing, a portion of the housing being formed with a cavity for a cartridge fuse, and two conductor elements mounted to the housing, one portion of each conductor element forming a respective one of two contacts for the fuse, another portion of each conductor element forming a respective one of two external contacts of the fuseholder, for plugging into the terminal block and making electrical contact with two corresponding internal electrical contacts of the terminal block, characterised in that the terminal block and the fuseholder are adapted so that the fuseholder can be plugged into the terminal block selectively one way round or an opposite way round, relative to an axis of the fuseholder, and in that said portion of the housing formed with the cavity for the cartridge fuse is located wholly to one side of said axis, whereby, in use, two mutually adjacent such fuseholders, plugged opposite ways round into mutually adjacent, stacked, terminal blocks mounted on a mounting rail, become stacked together so that said portion of the housing formed with the cavity for the cartridge fuse of each fuseholder is located to one side of said portion of the housing formed with the cavity for the cartridge fuse of the other fuseholder.

[0006] Preferably, said portion of the housing formed with the cavity for the cartridge fuse is the thicker one of two portions of the housing of different thickness, the thinner portion being located wholly to the other side of said axis, whereby, in use, said two mutually adjacent such fuseholders, plugged said opposite ways round into said mutually adjacent, stacked, terminal blocks mounted on said mounting rail, become stacked together so that the thicker housing portion of each fuseholder becomes stacked with the thinner housing portion of the other fuseholder.

[0007] Preferably, the housing is formed with a step change in thickness between the thicker housing portion on the one hand and the thinner housing portion on the other hand.

[0008] Preferably, the two terminal blocks can be stacked on the mounting rail at a minimum pitch of x mm, where x is an arbitrary dimension, the thickness of said portion of the housing formed with the cavity for the cartridge fuse being greater than x mm in thickness.

[0009] Preferably, the thickness of the thinner housing portion is less than x mm in thickness.

[0010] Preferably, x is 5 mm.

[0011] Preferably, the thicker one of said two portions of the housing has a maximum thickness of 6 mm and the other one of said two portions of the housing has a maximum thickness of 4 mm.

[0012] Preferably, the fuseholder is adapted for use with a cartridge fuse of x mm diameter.

[0013] Preferably, the fuseholder is adapted so that the fuse, when inserted properly into the fuseholder, extends in the direction of the height of the terminal block and perpendicularly to the width and the length of the mounting rail.

[0014] Advantageously, a lid may be hinged to the housing to open and close the housing, the lid having a loop to receive the fuse, so that when the lid is opened the fuse is pulled away from the contacts for the fuse.

[0015] Also advantageously, a flexible retaining strap may be attached to the fuseholder and adapted to connect the fuseholder to the terminal block.

[0016] The invention will be described further, by way of examples only, with reference to the drawings.

Brief description of the drawings

[0017]

FIG. 1 is an exploded perspective view of a mounting rail, two stacked (but unmounted) electrical terminal blocks, two electrical fuseholders and an end backing plate, embodying the invention;

FIG. 2 is a perspective view of the two fuseholders of FIG. 1, stacked in readiness to be plugged into the two terminal blocks of FIG. 1;

FIG. 3 is a side elevation of the two fuseholders of FIG. 2;

FIG. 4 is a side elevation of three stacked fusehold-

ers;

FIG. 5 is a perspective view of the three fuseholders of FIG. 4, and a backing plate;

FIG. 6 is a perspective view of a fuseholder in partly finished state, together with a backing plate;

FIG. 7 is a perspective view from one side of a modified fuse holder forming a second embodiment of the invention;

FIG. 8 is a similar perspective view of the modified fuse holder from the other side;

FIG. 9 is a perspective view of the modified fuseholder, opened up, and with its retaining strap, two conductor elements and cartridge fuse disassembled;

FIG. 10 is a corresponding view to FIG. 9, with the fuse refitted in the lid, with the retaining strap and two conductor elements re-attached to the housing;

FIG. 11 is a view of the modified fuseholder of FIGS. 7 to 10, fitted with its retaining strap, and of a terminal block and a mounting rail, disassembled from each other;

FIG. 12 is a view corresponding to FIG. 11 of the various items assembled together;

FIGS. 13 and 14 are perspective views, from opposite sides, of a stack of three of the modified fuseholders (without retaining straps); and

FIGS. 15 and 16 are a side elevation and a plan view respectively of the stack of fuseholders of FIGS. 13 and 14.

Detailed description of preferred embodiment of the invention

[0018] Referring to FIG. 1, there is shown (exploded) an electrical terminal block and fuseholder installation 10 which comprises a mounting rail 12, two identical electrical terminal blocks 14a, 14b, two corresponding identical electrical fuseholders 16a, 16b and a backing plate 18.

[0019] In FIG. 1, arrows 20A, 20B and 20C respectively indicate directions transversely of the rail 12, perpendicularly to the rail 12 and longitudinally of the rail 12. It is readily apparent that each terminal block 14 has a length, transversely of the rail 12, and a height, perpendicular to the rail 12, both much greater than the thickness of the terminal block 14 in the longitudinal direction of the rail 12. The two terminal blocks 14a, 14b are stacked with each other along the mounting rail 12, at a pitch - the dimension "x" referred to above - of 5mm. Each terminal block 14 has two resilient feet 22a, 22b, one at each end of the terminal block 14, to engage the undersides of two side flanges 12a, 12b of the rail 12. There will usually be many more than just two terminal blocks 14 mounted on, and stacked along, the rail 12, at 5 mm intervals - the 5mm pitch "x" referred to above. Each terminal block 14 can be snapped onto and off the rail 12 without disturbing the other terminal blocks 14. Such terminal blocks are well known in the art and de-

tailed description of every feature of the terminal block 14 is believed to be unnecessary. However, attention is drawn to an aperture 24a, 24b in the top of each terminal block 14a, 14b, for the respective fuseholder 16a, 16b to be plugged into and unplugged from the terminal block 14a, 14b.

[0020] The two fuseholders 16a, 16b are shown in FIG. 1 with fuseholder 16a in one of the two possible required orientations and fuseholder 16b in the other required orientation for the fuseholder 16 to be plugged into the associated terminal block 14. Changing between the two orientations involves simply rotating either fuseholder 16 by 180° around its axis of symmetry 25, parallel to direction 20B.

[0021] Each fuseholder 16 comprises a unitary insulating plastics housing 26 which is formed (FIG. 6) with a cavity 28 for a standard type of cartridge fuse 30 of 5mm diameter. The cavity 28 is open at one side of the housing 26, as shown in the drawings. The fuseholder 16 also comprises two, two-leaved, conductor elements 32, 34 mounted to the housing 26. The cartridge fuse 30 is oriented perpendicularly to the rail 12, i.e. parallel to direction 20B. The conductor element 32 comprises a two-arm portion 32a clipped around the bottom contact 30a of the cartridge fuse 30, whilst the conductor element 34 comprises a two-arm portion 34a clipped around the top contact 30b of the cartridge fuse 30. The conductor element 32 also comprises an external two-blade spring-contact portion 32b, whilst the conductor element 34 comprises an external two-blade spring-contact portion 34b. The two external spring-contact portions 32b, 34b project downwardly side-by-side as shown, for plugging into the terminal block 14 through the aperture 24, to make contact respectively with two internal electrical contacts (not shown) of the terminal block 14.

[0022] The housing 26 is formed (FIG. 1) with two portions of different thickness (in the longitudinal direction 20C of the rail 12. One portion 26a is 6mm - i.e. a dimension $(x + \delta)$ - thick whilst the other portion 26b is only 4 mm - i.e. a dimension $(x - \delta)$ - thick. There is a step change at 26c between the two portions 26a, 26b, the step at 26c extending perpendicularly to the rail 12 along the axis of symmetry 25, i.e. in the direction 20B. The fuse cavity 28 is in the thicker portion 26a. A wall 26d, at the "closed" side of the cavity 28, has an aperture 26e to help air circulation around the cartridge fuse 30.

[0023] As shown in FIG. 1, the fuseholder 16b is the opposite way round to fuseholder 16a, that is, it has been rotated 180° about an axis parallel to direction 20B, so that the thicker housing portion 26a of fuseholder 16a faces the thinner housing portion 26b of fuseholder 16b, and *vice versa*. The pitch of the external fuseholder contacts 32b, 34b is $x = 5\text{mm}$, the same as the pitch of the terminal blocks 14a, 14b on the rail 12.

[0024] Of course, it is desirable and necessary to provide sufficient clearances to allow for dimensional tolerance variation.

[0025] FIGS. 4 and 5 show the two fuseholders 16a, 16b stacked with a third fuseholder 16c, in the order 16a, 16b, 16c. It is preferable for the third fuseholder 16c to be oriented the same way as the first one, 16a.

[0026] However many fuseholders 16 are stacked together, one end one is likely to have the fuse dangerously exposed, as shown in FIGS. 1, 2 and 5, so the end plate 18 is required to cover it in as shown. The end plate 18 has an aperture 18a corresponding to the aperture 26e (FIG. 1). The end plate 18 also has four fixing pegs 18b-18e which locate respectively in four holes 26f-26i in housing 26.

[0027] In FIGS. 1-5, each fuseholder 16 is shown in finished, fully assembled, form. FIG. 6 shows the fuseholder 16 before a flap 36, joined integrally to the main body of the housing 26 by a "live" (i.e. integral) hinge 38, is closed over to engage three pegs 36a-36c of the flap in three further holes 26j-26l in the main body of housing 26.

[0028] In a modification, not illustrated, the thin housing part 26b is omitted and each thick housing part 26a faces a gap where the thin housing part 26b was. This may be useful for high density stacks where x is small. The thick portion 26a in this case may have a thickness approaching $2x$. That is, the gap may vanish.

[0029] Referring now to FIGS. 7 to 16, there is shown a modified fuseholder 40, forming a second embodiment of the invention.

[0030] Fuseholder 40 comprises an insulating plastics housing 41, integrally joined as a single molding to an insulating lid 42, of the same plastics as the housing 41, by a "live" hinge 43 in the form of a relatively thin and flexible bridging web, of the same plastics as, and integrally joined in the single molding to, the housing 41 and lid 42. Four pegs 42a-42d (FIG. 9) are formed in the lid 42, to releasably engage four holes 41a-41d in the housing 41 so as to hold the housing 41 and lid 42 normally closed.

[0031] Indentations 41e, 42e, and 41f, 42f (FIGS. 7, 8 and 9) are provided in the edges of housing 41 and lid 42 respectively, to facilitate manual opening of the housing 41 and lid 42, by insertion of the blade of a screwdriver (not shown) in the indentations.

[0032] As shown in FIG. 10, a portion 44 of housing 41 is formed with a cavity 45 for a 5mm diameter cartridge fuse 46.

[0033] A long metal conductor element 47 and a short metal conductor element 48 are mounted to the housing 41, which (see FIG. 9) has three pegs 49a, 49b and 49c to engage in three holes 50a, 50b and 50c respectively in conductor element 47, and one peg 49d to engage in one hole 50d in conductor element 48, to hold the conductor elements 47, 48 in place. Portions 47a and 48a of conductor elements 47 and 48 respectively form two, two-blade, contacts for respectively opposite end electrical contacts 46a, 46b of cartridge fuse 46, as shown, whilst portions 47b and 48b of conductor elements 47 and 48 respectively form two external (though shielded

by insulation) single-blade, contacts of fuseholder 40, for plugging into a terminal block 70 (FIGS. 11 and 12) and making electrical contact with two corresponding internal electrical contacts of terminal block 70.

[0034] As shown, like terminal block 14, terminal block 70 has a length, transversely of rail 71, and a height, perpendicular to rail 71, both much greater than its thickness (which is about 5mm, or slightly less than 5mm) in the longitudinal direction of rail 71. Terminal block 70 is adapted to be stacked with other such terminal blocks along rail 71, at a pitch of 5mm.

[0035] More particularly, terminal block 70 has two feet 70a, 70b of insulating plastics material, integral with a plastics housing 70c of the terminal block 70. These feet 70a, 70b respectively clip onto flanges 71a, 71b of the rail 71, as shown in FIG. 12. The second foot 70b is resilient and can be unclipped from the flange 71b to demount the terminal block 70 from the rail 71.

[0036] To receive the fuseholder 40, the terminal block 70 is formed with an upstanding plastics block 70d, integral with the housing 70c. Two resilient plastics pieces 70e, 70f, also integral with housing 70c, are positioned on opposite sides of block 70d, separated from the block 70d by two slots 70g, 70h.

[0037] The two above-mentioned internal electrical contacts of the terminal block 70, which are engaged by the contacts 47a, 48a of fuseholder 40, are inside the block 70d.

[0038] The terminal block 70 also, of course, contains (within housing 70c) conventional terminals, not shown, to which external circuits can be connected. Conductor strips or busbars, also not shown, interconnect the external circuit terminals and the contacts in the block 70d, for the external circuits to be protected by the fuse 46 when fuseholder 40 is plugged in.

[0039] As with the terminal block 14 and fuseholder 16 of FIGS. 1 to 6, the terminal block 70 and fuseholder 40 of the second embodiment of FIGS. 7 to 16 are adapted so that the fuseholder 40 can be plugged into (and unplugged from) terminal block 70 selectively either one way round or an opposite - 180° turned - way round, relative to an axis (not shown, but equivalent to axis 25 in FIG. 1) of the fuseholder 40. The housing portion 44 is located wholly to one side of this axis.

[0040] The fuseholder 40 has a downwardly projecting plug 40a (FIGS. 7, 8, 11) formed by integral portions 41g, 42g (FIG. 9) of housing 41 and lid 42 respectively, plus extensions 54a, 55a of plastics ribs 54, 55 referred to below. The contacts 47b, 48b are located in housing portion 41g as illustrated in FIGS. 9, 10. The plug 40a plugs either way round, as desired, into a socket 70i (FIG. 11) in block 70d. A part-spherical protruberance 40b on plug 40a engages in a hole 70m in block 70d to releasably hold the plug 40a within the block 70d.

[0041] In use, any two mutually adjacent such fuseholders 40, when plugged opposite ways round respectively into a corresponding two mutually adjacent, stacked, terminal blocks 70, mounted at a 5mm pitch on

mounting rail 71 (FIGS. 11 and 12), become stacked together so that the housing portion 44 of each fuseholder 40 is located to one side of, that is to say, in a "laterally staggered" relation to, the housing portion 44 of the other fuseholder 40.

[0042] As shown most clearly in FIG. 8, housing portion 44 is integral with, and side-by-side with, another housing portion 51 of housing 41. Housing portion 51 is considerably thinner than housing portion 44 and is located substantially wholly, or mainly, on an opposite side of the above-mentioned axis from housing portion 44, there being a step change in the thickness of housing 41, between the housing portions 44, 51, at 52 where the axis is positioned.

[0043] The inside of the lid 42 is formed with an integral, closed plastics loop 53 (FIG. 10), to receive the cartridge fuse 46 so that, when the lid 42 is opened, the fuse 46 is pulled away from the contact portions 47a, 48a of conductor elements 47, 48. Conversely, when the lid 42 is closed, the contacts 46a, 46b of cartridge fuse 46 are pushed into engagement with the contact portions 47a, 48a by the force of the lid 42 on the fuse 46.

[0044] As shown in FIGS. 9 and 10, the insides of the housing 41 and lid 42 are respectively formed with two central, integral plastics ribs 54 and 55, referred to already above, adapted to shield the conductor elements 47, 48 electrically from each other, against arcing, when the lid 42 is closed.

[0045] The fuseholder 40 may, if desired, be fitted with a removable flexible plastics retaining strap 56.

[0046] The strap 56 is formed at one of its two ends with a first integral enlargement 57 having a hole 58 to receive, with a tight fit, one or other of two pegs 59, 60 of housing 41, as illustrated by FIGS. 9, 10, according to whether the strap 56 is required to be located on the side where it is shown in full lines, at 61, or the side where it is shown in phantom lines, at 62.

[0047] The strap 56 is formed at its opposite end with a specially shaped, second integral enlargement 63, adapted to be inserted with a tight fit into one or other of two receptacles 70j, 70k (FIG. 11) in the pieces 70e, 70f - depending on the side 61 or 62 on which the strap 56 is located, of the terminal block 70. (The unoccupied one of the two cavities 70j, 70k can be fitted with an identity tag, not shown, in the form of a plastics piece, shaped similarly to the second enlargement 63 of strap 56, and printed with a chosen identity code, to identify the terminal block 70 in any way desired.)

[0048] When thus fitted to the fuseholder 40 and the terminal block 70, as shown in FIG. 12, the retainer strap 56 retains the fuseholder 40, preventing the fuseholder 40 from being dropped and perhaps lost when unplugged from the terminal block 70.

[0049] The retainer strap 56 is formed, intermediate its ends, with a receptacle 65 for an identity tag (not shown) of the type described above.

[0050] FIGS. 13 to 16 show a stack of three fuseholders 40A, 40B and 40C, with the centre fuseholder 40B

turned the opposite way round to the two outside fuseholders 40A, 40C, so that the thin housing portion 51 of the middle fuseholder 40B is sandwiched in between the thick housing portions 44 of the two outside fuseholders 40A, 40C, and so that the successive thick housing portions 44 of successive stacked fuseholders 40 are to one side of each other, that is, are laterally staggered.

[0051] Given that the cartridge fuse 46 itself is of 5mm diameter and is enclosed by the lid 42, and by a wall 41h (FIG. 8) of housing portion 44, the thin housing portion 51 is nevertheless thin enough for the "pitch" of the stack of fuseholders 40A, 40B and 40C to be only 5mm. The three fuseholders 40A, 40B and 40C may each be fitted with a retainer strap 56 if desired.

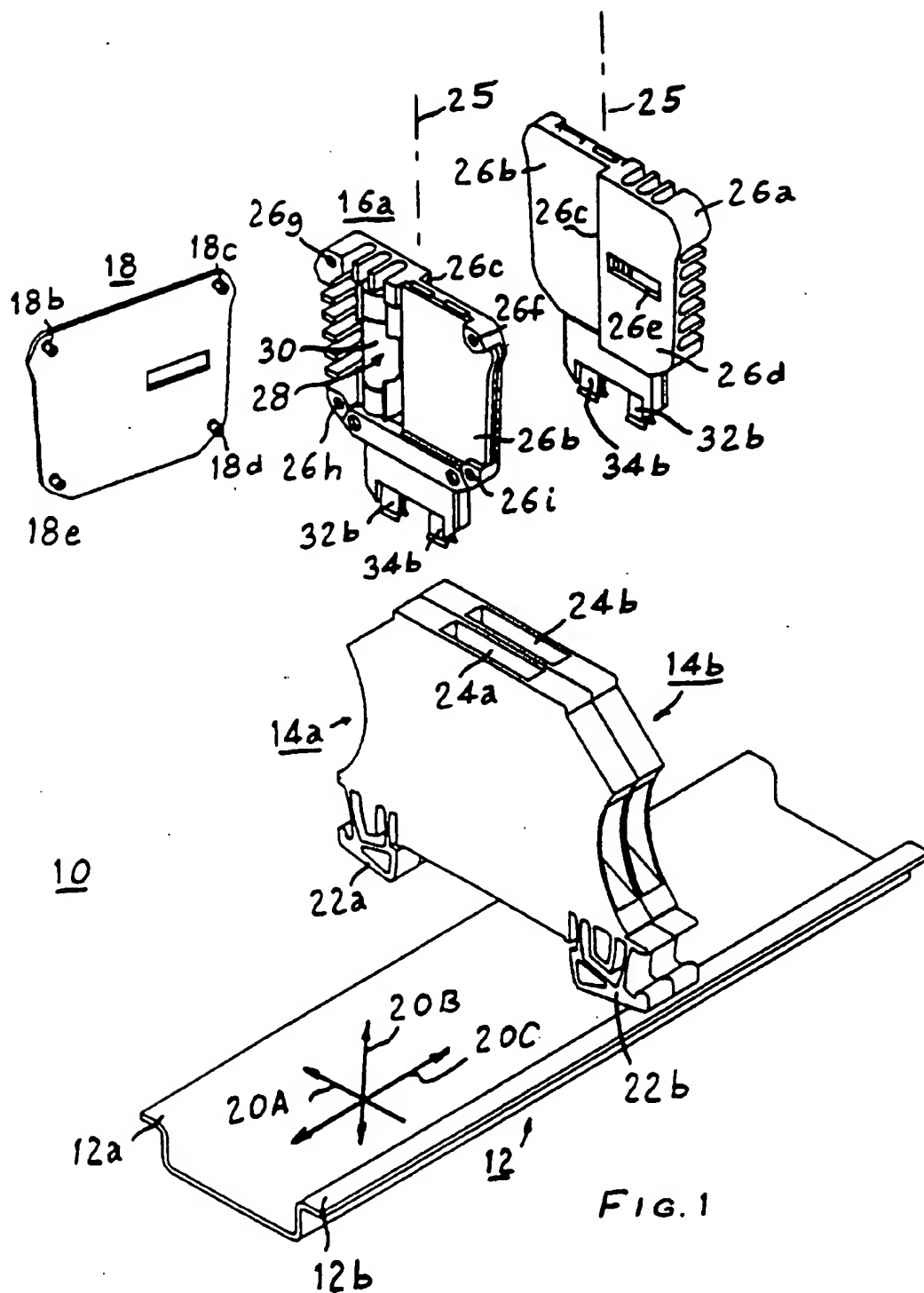
[0052] Obviously, the dimensions (with tolerances) of housing portions 44, 51 have to allow for sufficient clearances, especially lateral clearances, for the fuseholders 40A, 40B, 40C etc. to be stacked alternate ways round, as shown, when plugged into terminal blocks 70, mounted themselves in a stack of 5mm pitch on mounting rail 71.

Claims

1. An electrical fuseholder (16, 40) for use with a rail-mounted electrical terminal block (14, 70) of the type defined, the fuseholder (16, 40) comprising an insulating plastics housing (26, 41), a portion (26a, 44) of the housing (26, 41) being formed with a cavity (28, 45) for a cartridge fuse (30, 46), and two conductor elements (32, 34, 47, 48) mounted to the housing (26, 41), one portion of each conductor element (32, 34, 47, 48) forming a respective one of two contacts (32a, 34a, 47a, 48a) for the fuse (30, 46), another portion (32b, 34b, 47b, 48b) of each conductor element (32, 34, 47, 48) forming a respective one of two external contacts of the fuseholder (16, 40), for plugging into the terminal block (14, 70) and making electrical contact with two corresponding internal electrical contacts of the terminal block (14, 70), characterised in that the terminal block (14, 70) and the fuseholder (16, 40) are adapted so that the fuseholder (16, 40) can be plugged into the terminal block (14, 70) selectively one way round or an opposite way round, relative to an axis (25) of the fuseholder (16, 40), and in that said portion (26a, 44) of the housing (26, 41) formed with the cavity (28, 45) for the cartridge fuse (30, 46) is located wholly to one side of said axis (25), whereby, in use, two mutually adjacent such fuseholders (16, 40), plugged opposite ways round into mutually adjacent, stacked, terminal blocks (14, 70) mounted on a mounting rail (12, 71), become stacked together so that said portion (26a, 44) of the housing (26, 41) formed with the cavity (28, 45) for the cartridge fuse (30, 46) of each fuseholder (16, 40) is located to one side of said portion (26a, 44) of the housing

(26, 41) formed with the cavity (28, 45) for the cartridge fuse (30, 46) of the other fuseholder (16, 40).

2. A fuseholder (16, 40) as claimed in claim 1, wherein said portion (26a, 44) of the housing (26, 41) formed with the cavity (28, 45) for the cartridge fuse (30, 46) is the thicker one of two portions (26a, 26b, 44, 51) of the housing (26, 41) of different thickness, the thinner portion (26b, 51) being located wholly to the other side of said axis (25), whereby, in use, said two mutually adjacent such fuseholders (16, 40), plugged said opposite ways round into said mutually adjacent, stacked, terminal blocks (14, 70) mounted on said mounting rail (12, 71), become stacked together so that the thicker housing portion (26a, 44) of each fuseholder (16, 40) becomes stacked with the thinner housing portion (26b, 51) of the other fuseholder (16, 40).
3. A fuseholder (16, 40) as claimed in claim 2, wherein the housing (26, 41) is formed with a step change (26c, 52) in thickness between the thicker housing portion (26a, 44) on the one hand and the thinner housing portion (26b, 51) on the other hand.
4. A fuseholder (16, 40) as claimed in claim 1, 2 or 3, wherein said two terminal blocks (14, 70) can be stacked on the mounting rail (12, 71) at a minimum pitch of x mm, where x is an arbitrary dimension, the thickness of said portion of the housing (26, 41) formed with the cavity (28, 45) for the cartridge fuse (30, 46) being greater than x mm in thickness.
5. A fuseholder (16, 40) as claimed in claim 4 dependent from claim 2 or 3, wherein the thickness of the thinner housing portion (26b, 51) is less than x mm in thickness.
6. A fuseholder (16, 40) as claimed in claim 4 or 5, wherein x is 5 mm.
7. A fuseholder (16, 40) as claimed in claim 6 dependent from claim 2 or 3, wherein the thicker one (26a, 44) of said two portions (26a, 26b, 44, 51) of the housing (26, 41) has a maximum thickness of 6 mm and the other one (26b, 51) of said two portions (26a, 26b, 44, 51) of the housing (26, 41) has a maximum thickness of 4 mm.
8. A fuseholder (16, 40) as claimed in any one of claims 4 to 7, adapted for use with a cartridge fuse (30, 46) of x mm diameter.
9. A fuseholder (16, 40) as claimed in any preceding claim, adapted so that the fuse (30, 46), when inserted properly into the fuseholder (16, 40), extends in the direction of the height of the terminal block (14, 70) and perpendicularly to the width and the length of the mounting rail (12, 71).
10. A fuseholder (40) as claimed in any preceding claim, wherein a lid (42) is hinged to the housing (41) to open and close the housing (41), the lid (42) having a loop (53) to receive the fuse (46), so that when the lid (42) is opened the fuse (46) is pulled away from the said contacts (47a, 48a) for the fuse (46).
11. A fuseholder (40) as claimed in any preceding claim, wherein a flexible retaining strap (56) is attached to the fuseholder (40) and is adapted to connect the fuseholder (40) to the terminal block (70).
12. A fuseholder (16, 40) as claimed in any preceding claim in combination with, and plugged into, a terminal block (14, 70).
13. A fuseholder (16, 40) and terminal block (14, 70) in combination as claimed in claim 12 and in combination with a mounting rail (12, 71), the terminal block (14, 70) being demountably mounted on the mounting rail (12, 71).
14. A stack of fuseholders (16, 40) and a stack of terminal blocks (14, 70) mounted on a single mounting rail (12, 71) as claimed in claim 13, mutually adjacent pairs of fuseholders (16, 40) being plugged opposite ways round into their respective terminal blocks (14, 70).



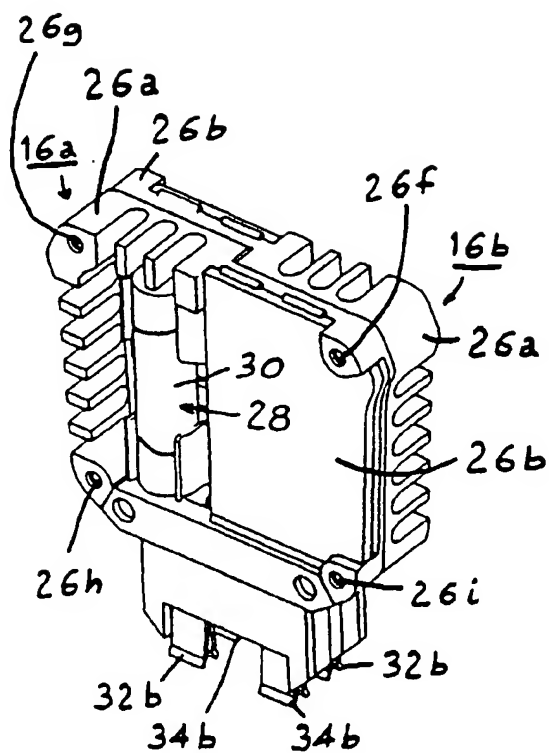


FIG. 2

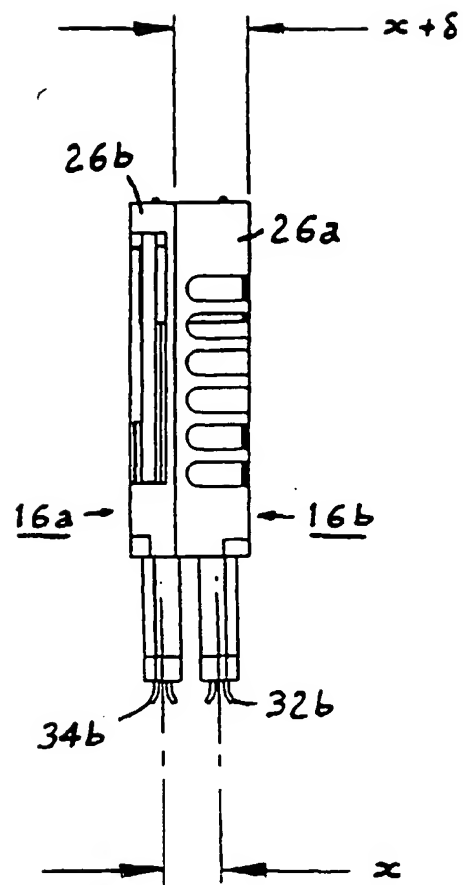


FIG. 3

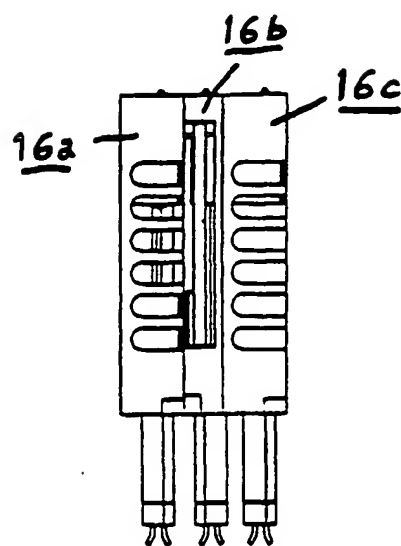


FIG. 4

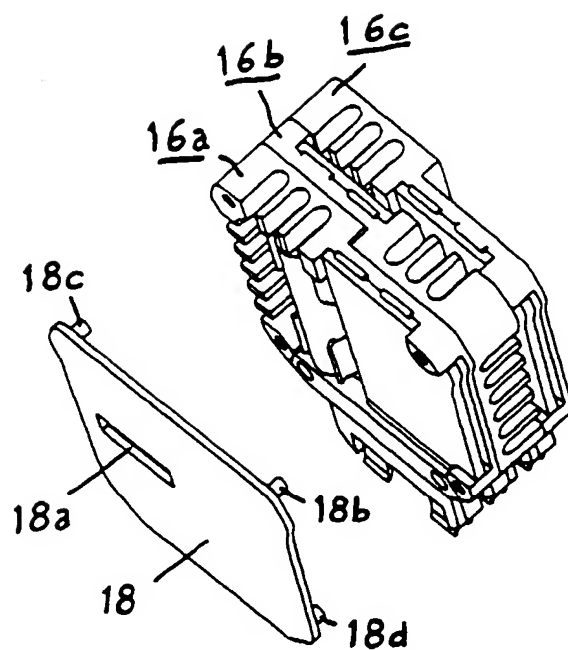


FIG. 5

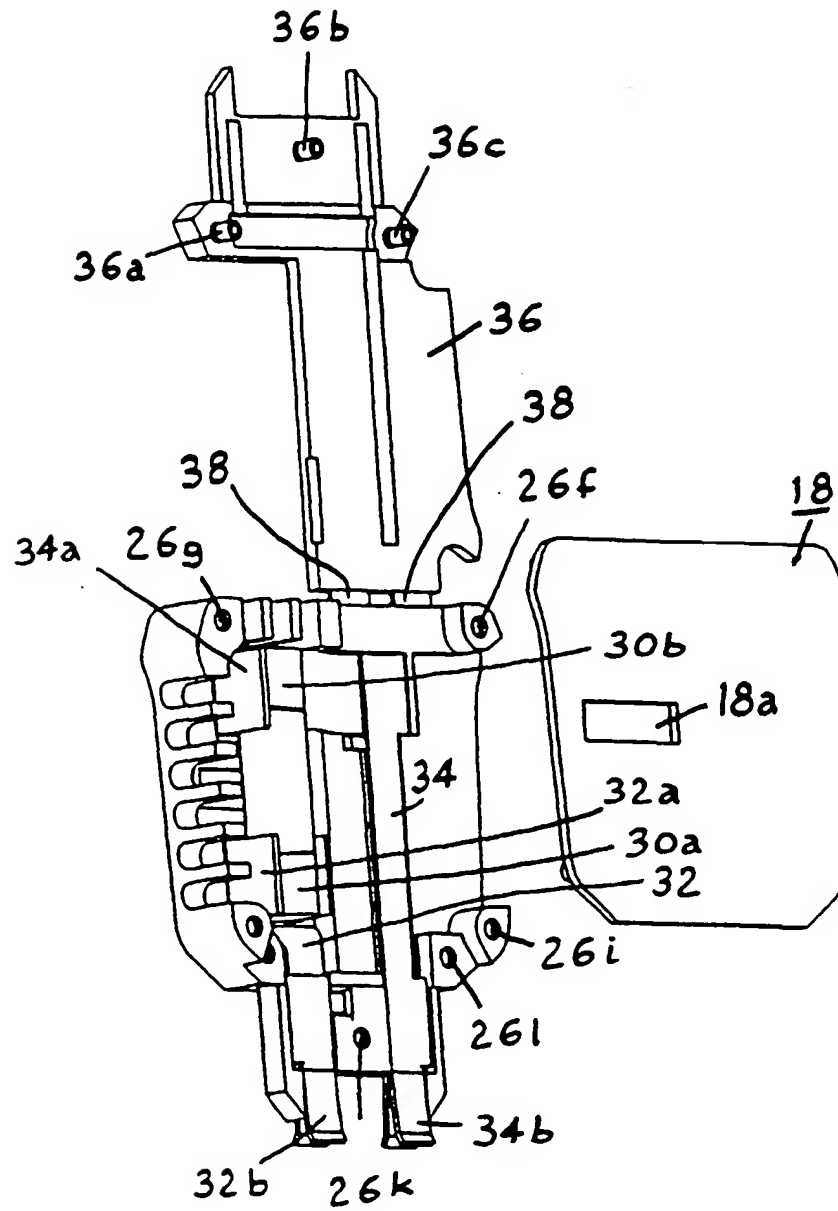


FIG. 6

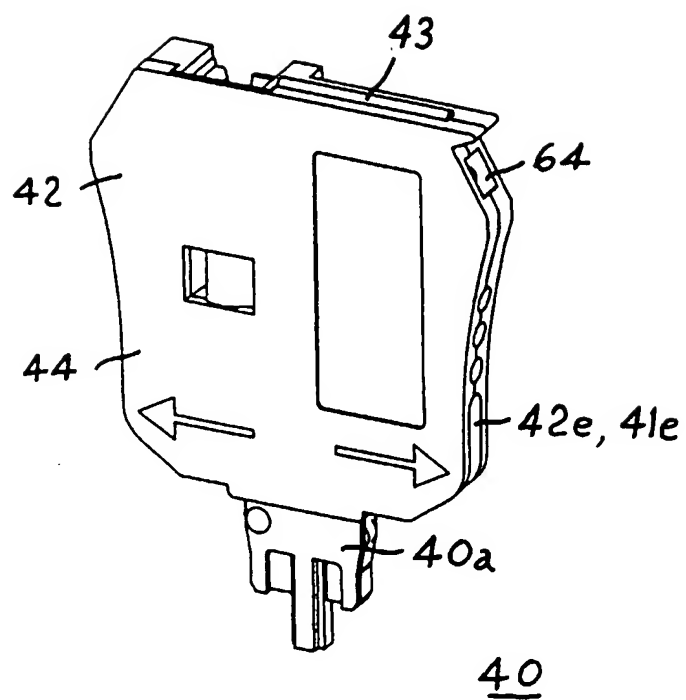


FIG. 7

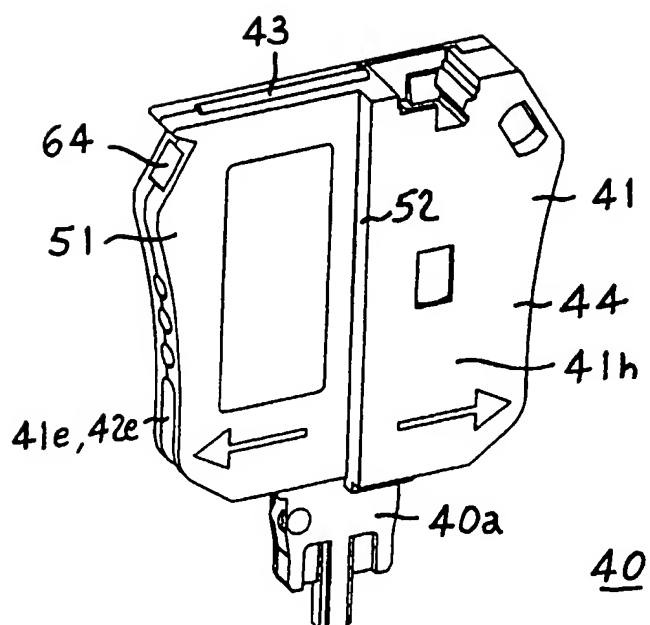
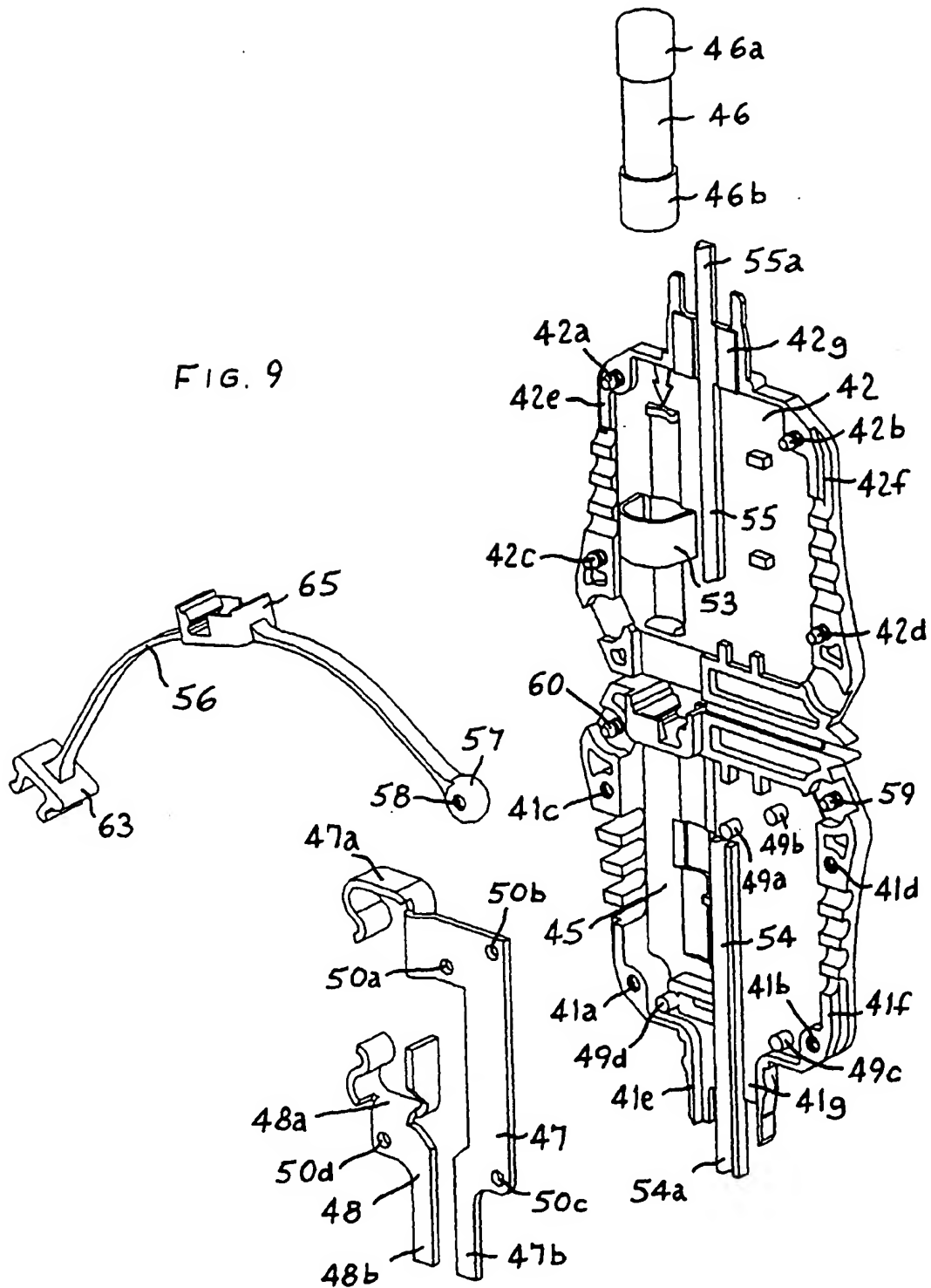
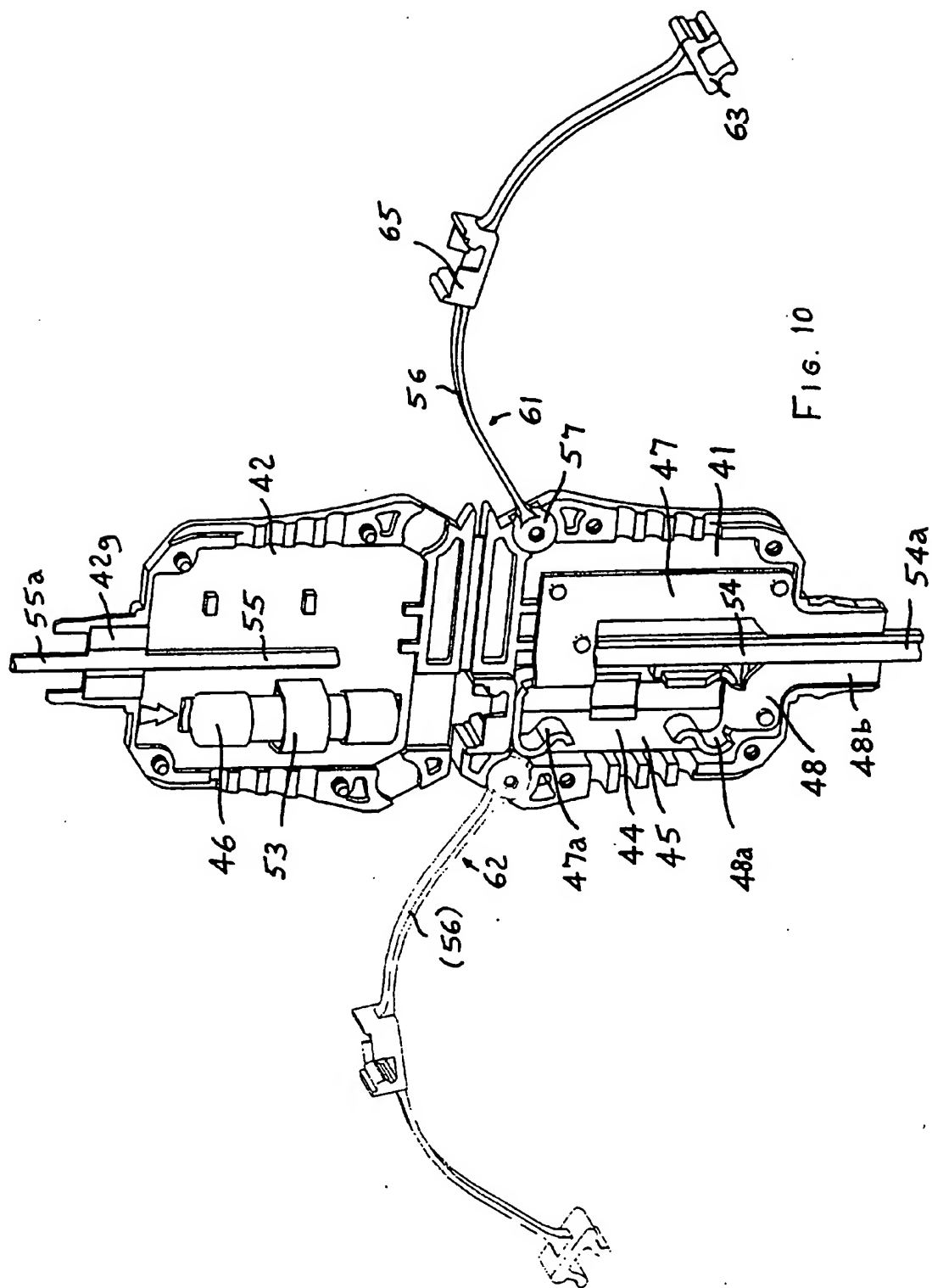
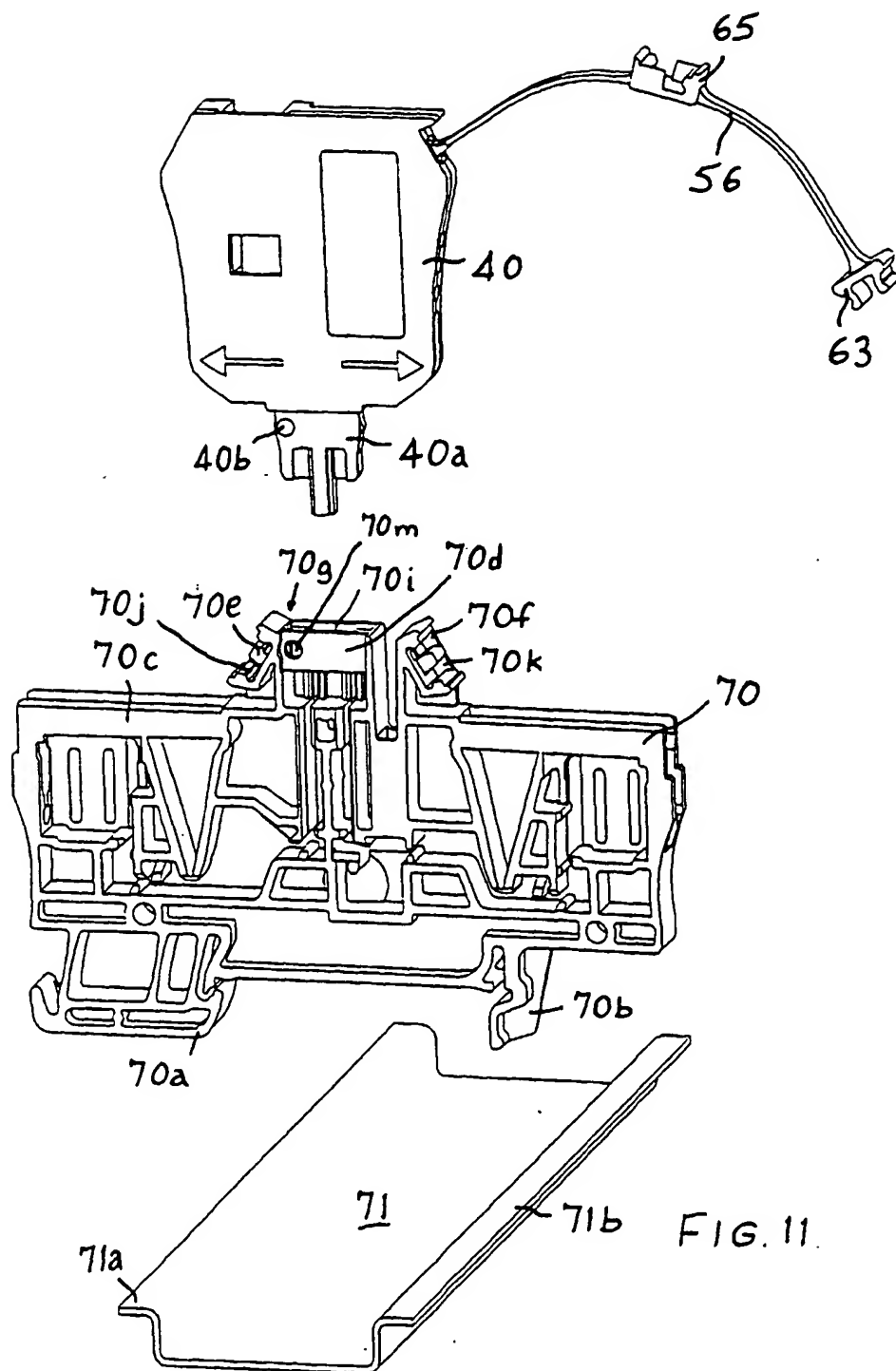


FIG. 8







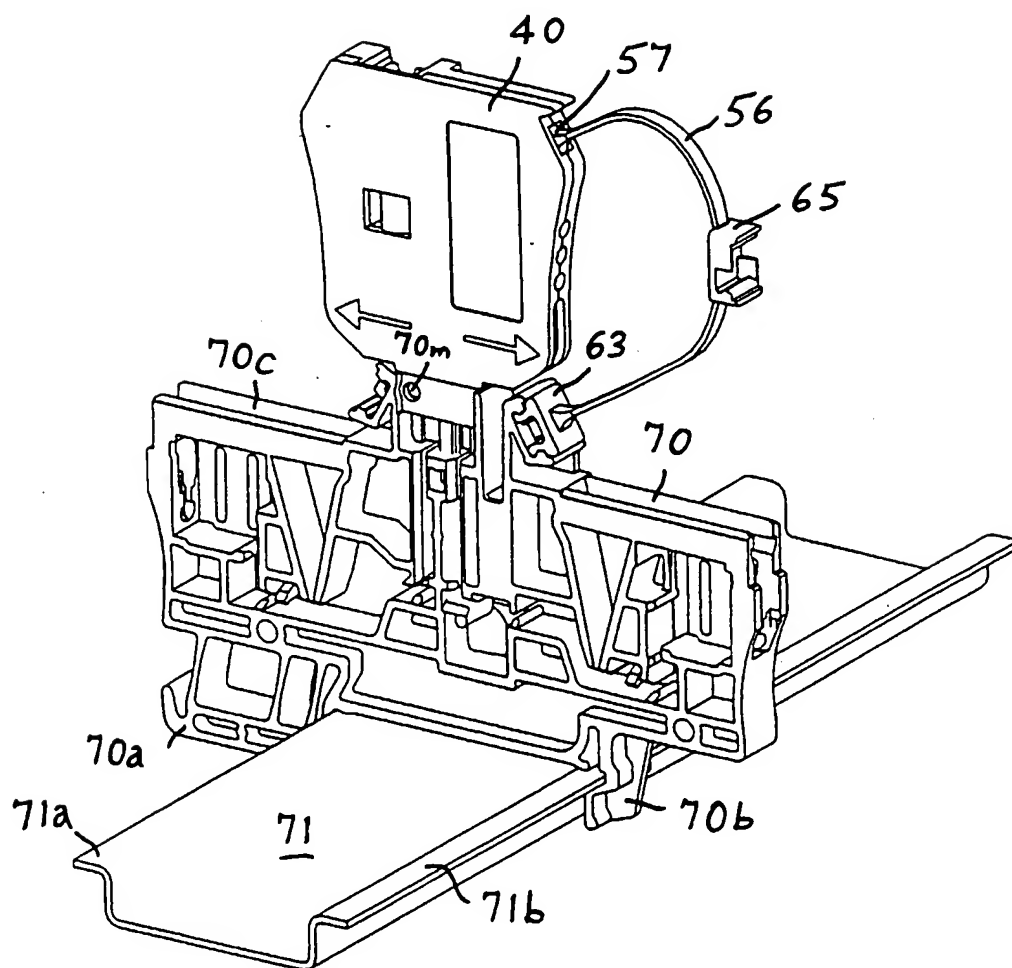


FIG. 12

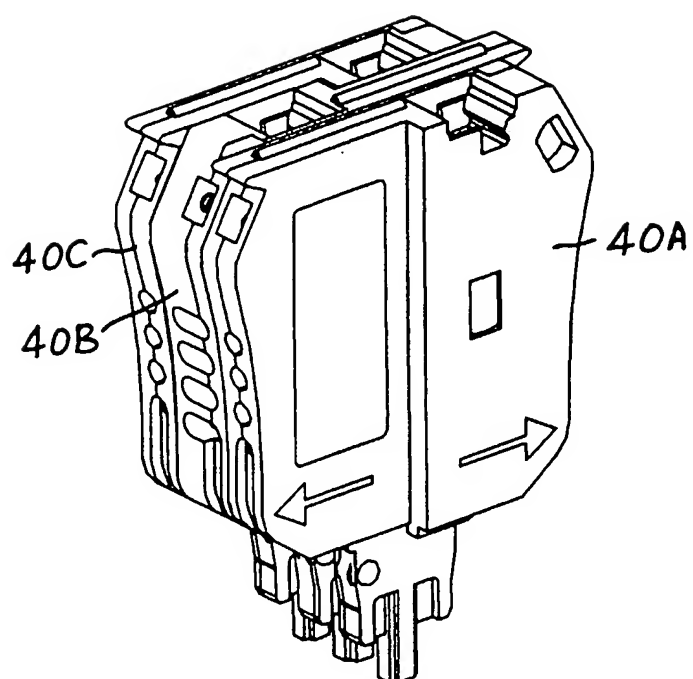


FIG. 13

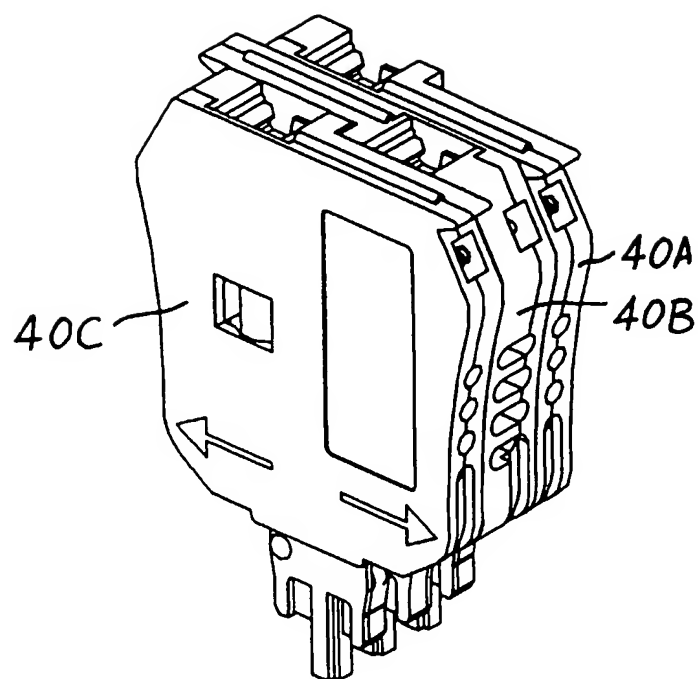


FIG. 14

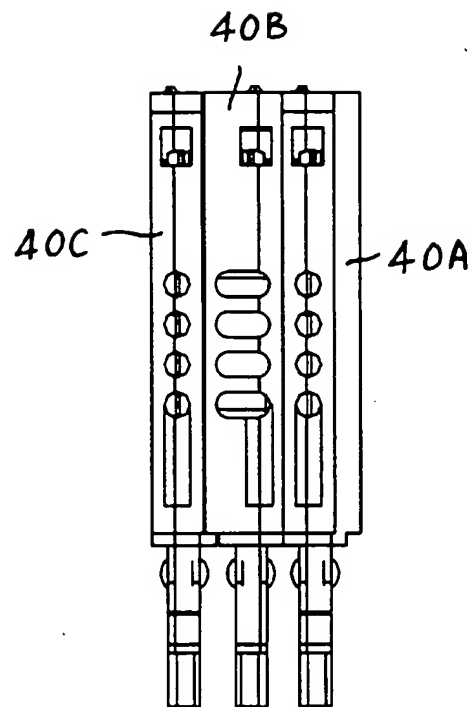


FIG. 15

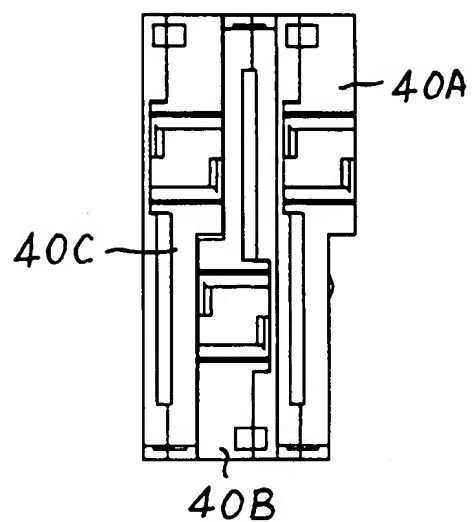


FIG. 16